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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,301	09/30/2003	Axel Hebecker	P03,0350	5376
26574	7590	07/08/2005		
SCHIFF HARDIN, LLP PATENT DEPARTMENT 6600 SEARS TOWER CHICAGO, IL 60606-6473			EXAMINER BRUCE, DAVID VERNON	
			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 07/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/675,301

Applicant(s)

HEBECKER ET AL.

Examiner

David V. Bruce

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1, 7-11, 13-24 and 26 is/are rejected.
- 7) ☒ Claim(s) 2-6, 12 and 25 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 20040213.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 15-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. Claims 15-19 recite the limitation “said biological tissue”, “the biological tissue”, and “said coding” (claim 17). There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 14, 15, 18, 20, 21, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Barni *et al.* US 5,841,830 A. Barni *et al.* shows all of the features of the instant invention including intraoperative generation of an update volume dataset from a reconstructed set of 2D x-ray projections and a reconstructed set of intraoperatively acquired 2D x-ray projections of fewer projection angles where an object of interest moves and is marked on the combined image with geometric calibration (abstract, summary of the invention, and column 3 lines 33-57). As the phrase “said biological tissue” is indefinite, the examiner will interpret it to mean any object of interest moving within a patient during an operation.

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5. Claims 1, 7-9, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Menhardt US 6,470,070 B2. Menhardt shows all of the features of the instant invention including intraoperative generation of an update volume dataset from a reconstructed set of 2D x-ray projections and a set of automatically or manually intraoperatively acquired 2D x-ray projections of fewer projection angles where an object of interest moves and is marked on the image created from the combined datasets with geometric calibration (abstract, figure 4, summary of the invention, and claim 1).

6. Claims 1, 7-9, 11, 13-15, 20-22, and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichihashi US 6,577,889 B2. Ichihashi shows all of the features of the instant invention including intraoperative generation of a c-arm CT update volume dataset from a reconstructed set of 2D x-ray projections and a set of intraoperatively acquired 2D x-ray projections of fewer projection angles where an object of interest moves and is marked on the image created from either combining reconstructed datasets or reconstructing combined datasets, with geometric calibration (abstract, brief summary of the invention, column 4 lines 55-67, column 6 lines 23-67, and column 7 line 57 through column 8 line 34).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Menhardt US 6,470,070 B2. Menhardt shows all of the features of the instant invention except for the use of a

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mechanical arresting system to position the x-ray system. Mechanical arresting systems are well known for limiting motion to a desired range. It would have been obvious to use a mechanical arresting system on the x-ray system of Menhardt motivated by the desire to allow a clinician to quickly move the x-ray system into the desired position.

9. Claims 10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichihashi US 6,577,889 B2. Ichihashi shows all of the features of the instant invention except for the use of a mechanical arresting system to position the x-ray system. Mechanical arresting systems are well known for limiting motion to a desired range. It would have been obvious to use a mechanical arresting system on the x-ray system of Ichihashi motivated by the desire to allow a clinician to quickly move the x-ray system into the desired position.

Allowable Subject Matter

10. Claims 2-6, 12, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 16, 17, and 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: in the claims, with the limitations as claimed, claims 2-6 address the changing of position of the biological tissue, claims 12 and 25 address projection geometry interpolation, claims 16 and 17 address specifics of the tissue coding, and claim 19 addresses the biological tissue being bone fragments. These features are neither shown nor fairly suggested in the prior art.

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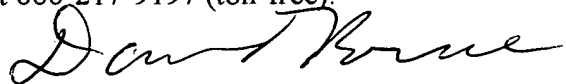
Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hebecker *et al.* Appears to be related to the present application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David V. Bruce whose telephone number is (571) 272-2487. The examiner can normally be reached on M - Th and alt Fri 8:00 - 4:30 subject to I-Flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David V Bruce
Primary Examiner
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dvb